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TN, TC, and SA indicate Technical Note, Technical Comment, and Survey Article, respectively; RS indicates supplement of translated Russian articles

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- Measurement of mean particle size in a gas-particle flow. R. A. Dobbins (TN)..... 1940
- Thermodynamic calculation of partly frozen flow. Gilbert S. Bahn (TN)..... 1960
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- Expanding flow ionization nonequilibrium: its contribution to MHD generators. Harry Lenn and Adolph R. Asam (TC)..... 1715
- Nongray error in total emittance measurements. K. E. Nelson and J. T. Bevans (TC)..... 1967
- Erratum: "Electrical discharge across a supersonic jet of plasma in transverse magnetic field." Sterge T. Demetriades and Peter D. Lenn (TC)..... 1967